AMENDMENTS TO THE CLAIMS

1. (Amended) An electrolysis cell, comprising:

a structure having at least one inlet channel for intake of water, a first outlet channel for output of hydrogen rich water, and a second outlet channel for output of Free Radical Solution water;

said structure accommodates a flat proton ion exchange membrane placed in between and fixedly attached to two flat mesh electrodes;

application of power to said electrodes electrolyzes water flowing through said inlet channel, generating Free Radical Solution water output through said first outlet channel and hydrogen rich water output through said second outlet channel.

2. (Original) The electrolysis cell of claim 1, wherein each of said flat mesh electrodes is comprised of two layers with a first layer having large protuberances and a second layer having smaller protuberances compared with said first layer's larger protuberances.

3. (Original) The electrolysis cell of claim 2, wherein said first layer with large protuberances is juxtaposed distal away from the proton ion exchange membrane surface, creating turbulence in flow of water adjacent said proton ion exchange membrane.

4. (Original) The electrolysis cell of claim 2, wherein said second layer with smaller protuberances is juxtaposed facing the proton ion exchanged membrane.

5. (Original) The electrolysis cell of claim 1, wherein said hydrogen rich water output through said second outlet channel is degassed for re-use.

6. (Original) The electrolysis cell of claim 5, wherein said degassing of said hydrogen rich water produces hydrogen and water, with said hydrogen used for generation of electric power and said water recycled back to said electrolysis cell through said inlet channel.

7. (Original) The electrolysis cell of claim 1, wherein power to said electrolysis is controlled by a control circuit.

8. (Original) The electrolysis cell of claim 7, wherein said control circuit adjusts inlet water flow and/or electric power to maintain the most effective production of FRS water and hydrogen rich water, or triggers a power shut-off signal to shut power off to said electrodes of said electrolysis cell based on information signals from a plurality of sensors that detect a variety of parameter values and output sensed signals based on deviation of normal parameter values from pre-programmed threshold levels.

9. (New) The electrolysis cell of claim 1, further comprising a commuting guide having at least one channel for facilitating Free Radical Solution water flow towards the first outlet channel.

10. (New) The electrolysis cell of claim 1, further comprising an Oxidation Reduction Potential (OPR) sensor for measuring an OPR level for the Free Radical Solution water.

11. (New) An electrolysis cell, comprising:

a structure having at least one inlet channel for intake of water, a first outlet channel for output of hydrogen rich water, and a second outlet channel for output of Free Radical Solution water;

said structure accommodating a flat proton ion exchange membrane, a first flat electrode and a second flat electrode, the flat proton ion exchange membrane having a first side and a second side, the first flat electrode coated on the first side of the flat proton ion exchange membrane and the second flat electrode coated on a second side of the flat proton ion exchange membrane;

application of power to said electrodes electrolyzes water flowing through said inlet channel, generating Free Radical Solution water output through said first outlet channel and hydrogen rich water output through said second outlet channel.

12. (New) An electrolysis unit, comprising:

a structure having at least one inlet channel for intake of water, a first outlet channel for output of hydrogen rich water, and a second outlet channel for output of Free Radical Solution water;

said structure accommodating a flat proton ion exchange membrane, a first flat mesh electrode, a second flat mesh electrode and a third flat mesh electrode, the flat proton ion exchange membrane having a first side and a second side, the first flat mesh electrode coupled to and parallel with the first side of the flat proton ion exchange membrane, the second flat mesh electrode and the third flat mesh electrode are coupled to and parallel with the second side of the flat proton ion exchange membrane;

application of power to said electrodes electrolyzes water flowing through said inlet channel, generating Free Radical Solution water output through said first outlet channel and hydrogen rich water output through said second outlet channel.

13. (New) The electrolysis unit of claim 12, wherein the second flat mesh electrode is operable independently from the third flat mesh electrode.

14. (New) An electrolysis cell, comprising:

a first structure having at least one inlet channel for intake of water, a first outlet channel for output of hydrogen rich water, and a second outlet channel for output of Free Radical Solution water, said first structure accommodating a first flat proton ion exchange membrane placed in between two flat mesh electrodes, application of power to said electrodes electrolyzes water flowing through said inlet channel, generating Free Radical Solution water output through said first outlet channel and hydrogen rich water output through said second outlet channel; and

a second structure coupled to the first structure, the second structure having a first and a second inlet channels, the first inlet channel is coupled to the first outlet channel of the first structure for receiving the Free Radical Solution water, the second inlet channel is coupled to the second outlet channel of the first structure for receiving the hydrogen rich water, said second structure accommodating a second flat proton ion exchange membrane placed in between two flat mesh electrodes, application of power to said electrodes electrolyzes water flowing through

said first and second inlet channels, enhancing the Free Radical Solution water outputted through a third outlet channel and hydrogen rich water outputted through a fourth outlet channel.